Journal of Geophysical Research - Solid Earth

Supporting Information for

A revised adiabatic temperature profile for the mantle

Tomoo Katsura

Bayerisches Geoinstitut, University of Bayreuth

Contents of this file

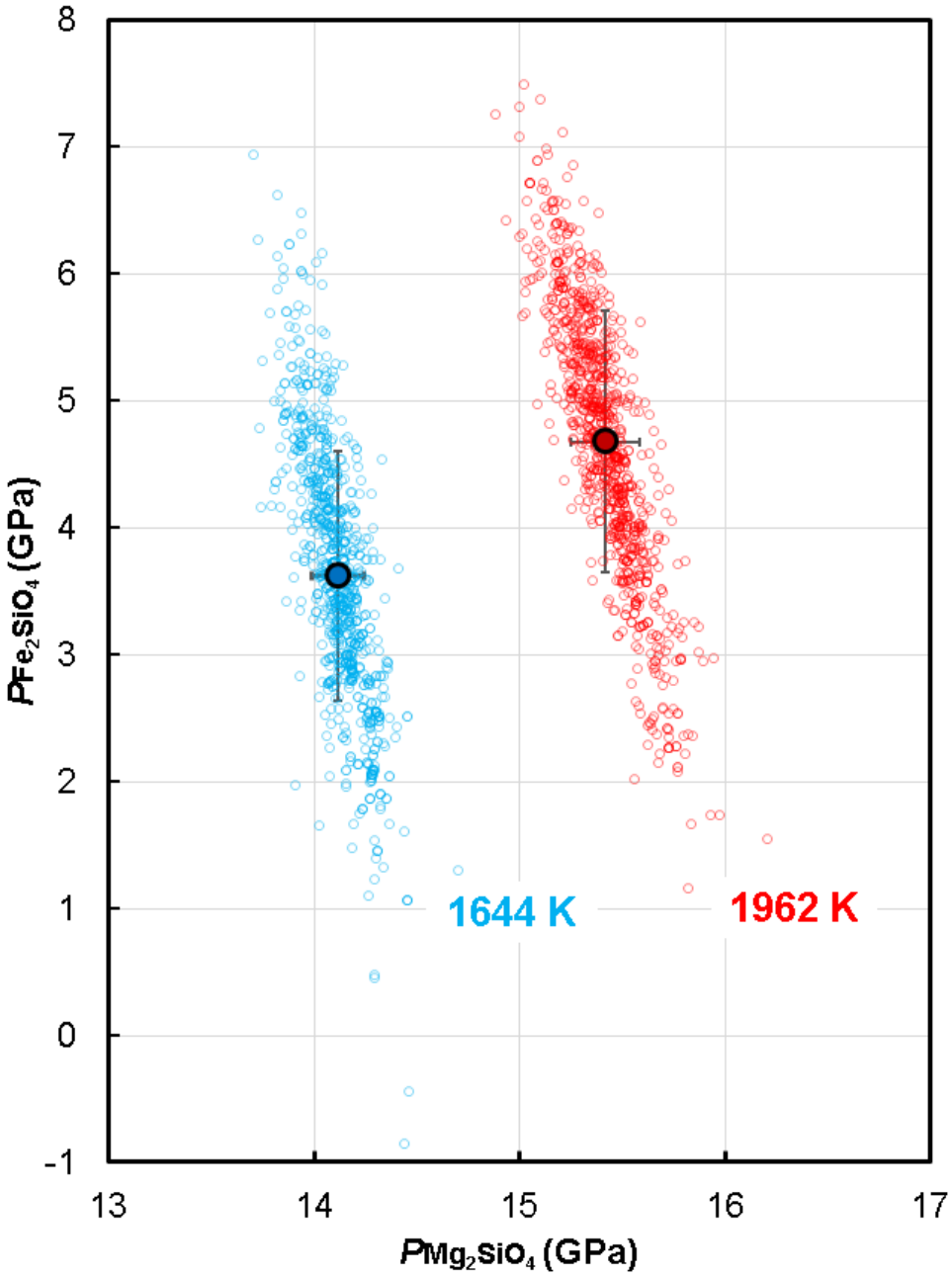

Figure S1. Correlation of the endmember transition pressures of the olivine wadsleyite transition. Determined by the data from Katsura et al. [2004a], corrected using Nishihara et al.'s [2020] thermocouple correction. Each point show the transition pressure obtained in each replica data set of the Monte Carlo simulation.

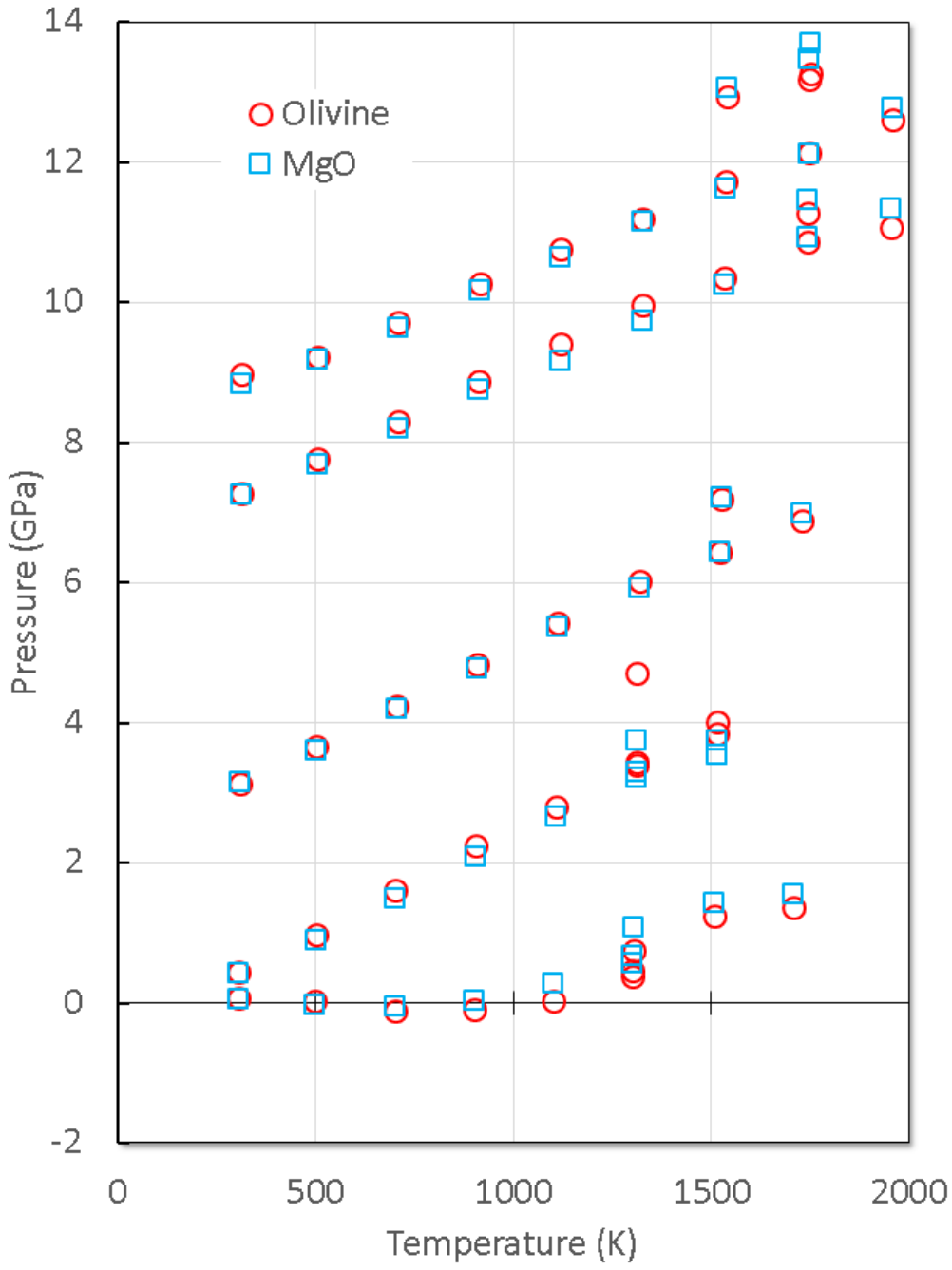

Figure S2. Comparison of the pressures using Tange et al.'s [2009] MgO and the current study's olivine EOS's.

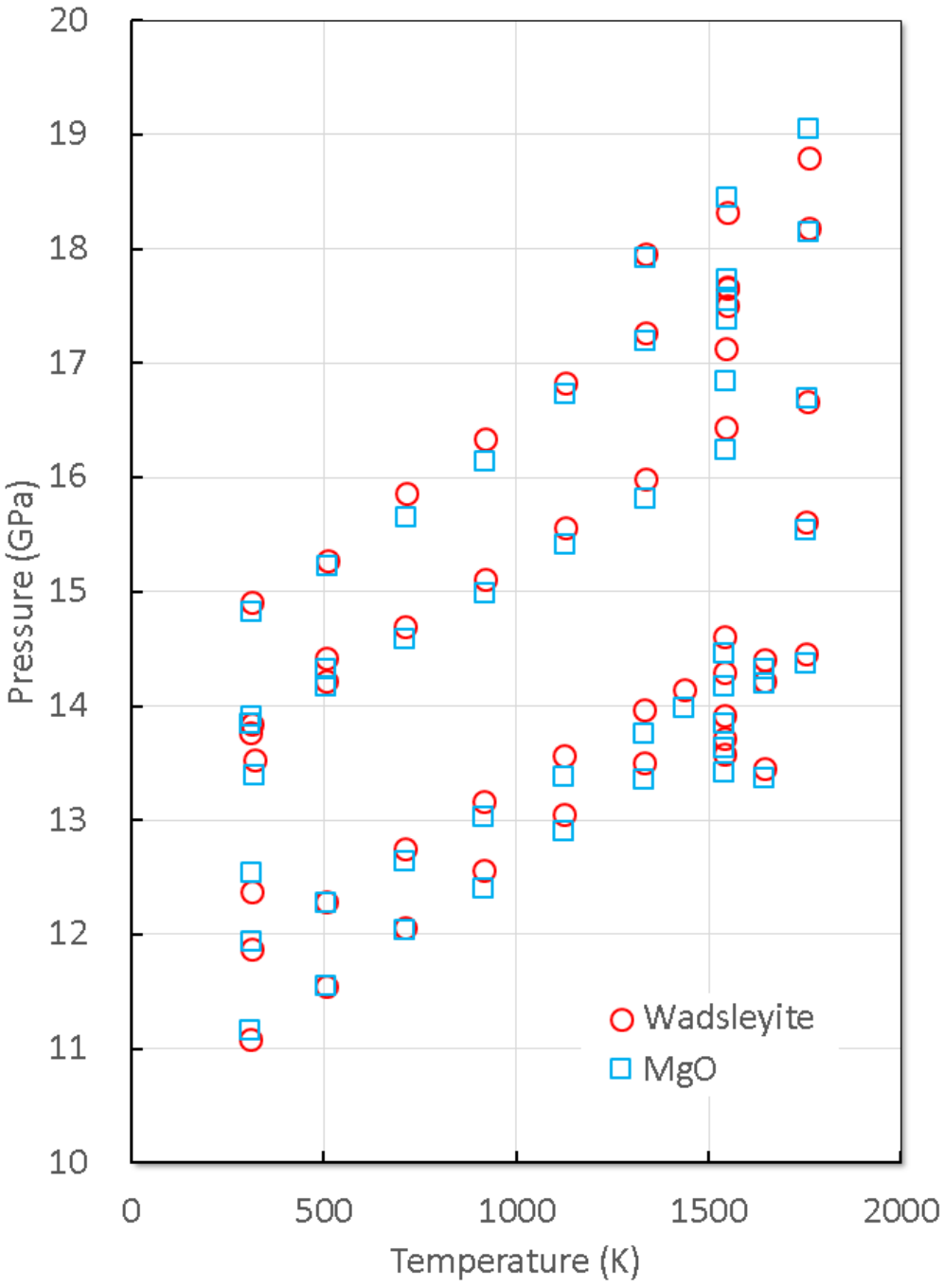

Figure S3. Comparison of the pressures using Tange et al.'s [2009] MgO and the current study's wadsleyite EOS's.

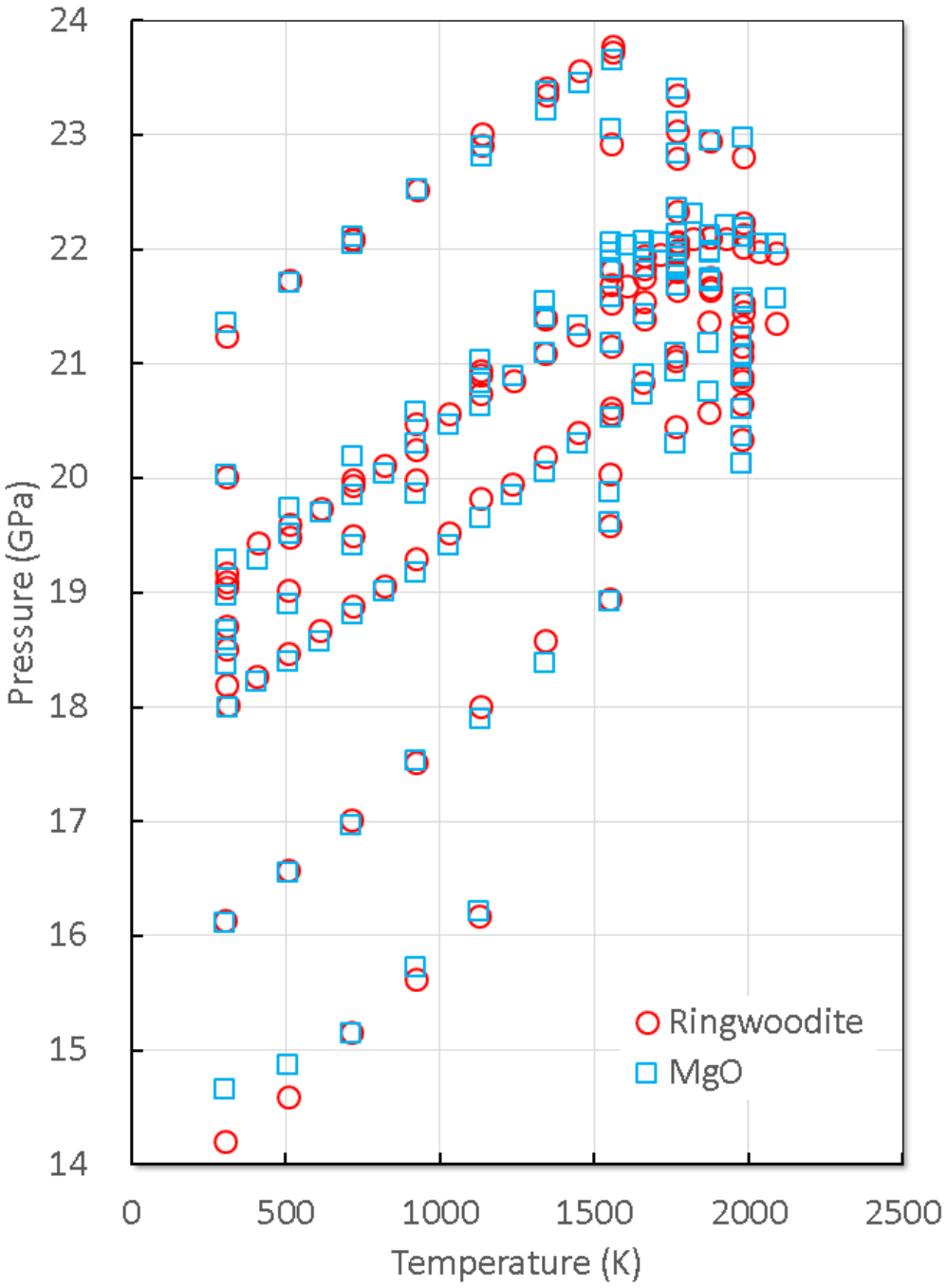

Figure S4. Comparison of the pressures using Tange et al.'s [2009] MgO and the current study's ringwoodite EOS's.

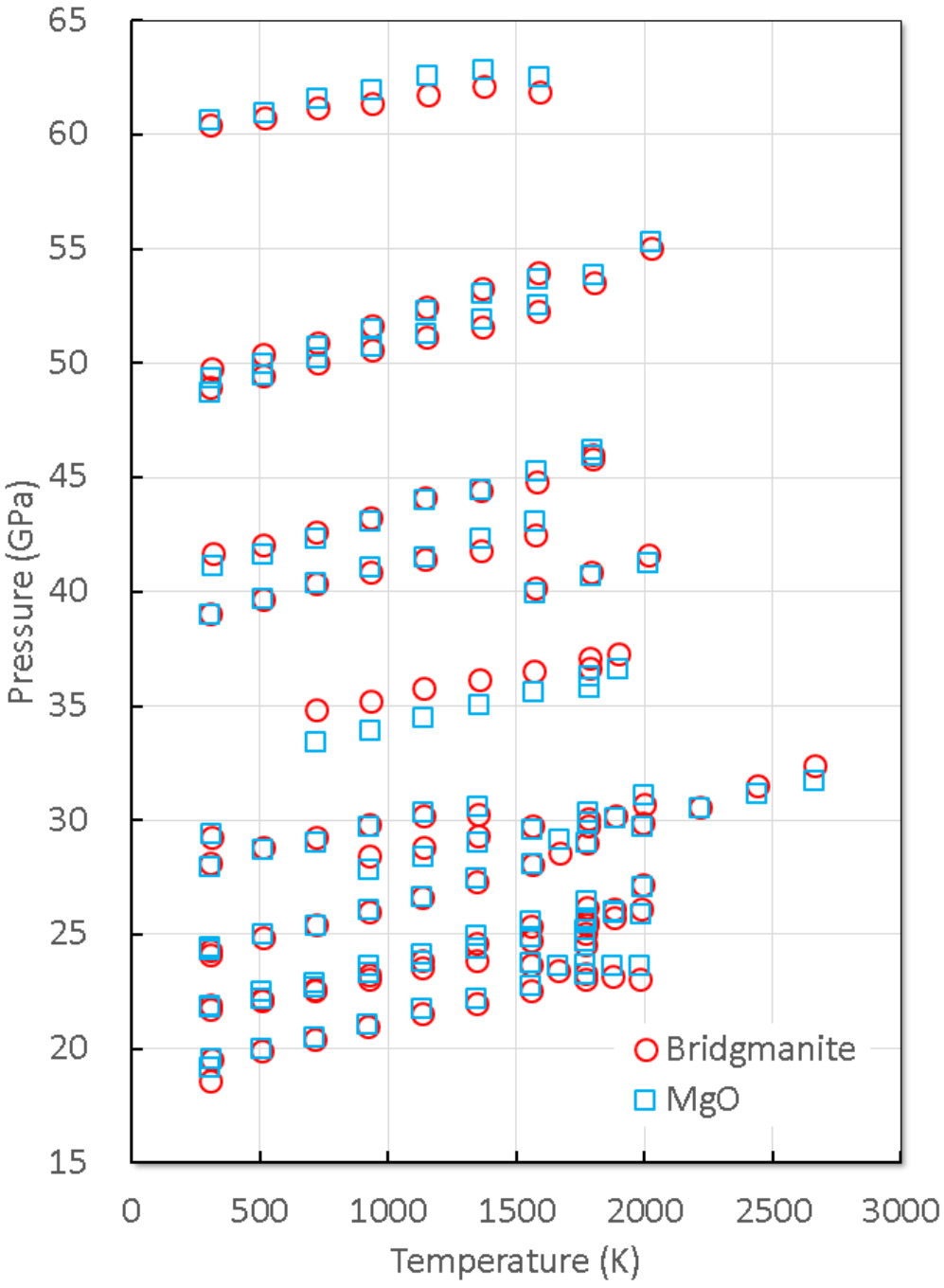

Figure S5. Comparison of the pressures using Tange et al.'s [2009] MgO and the current study's bridgmanite EOS's.

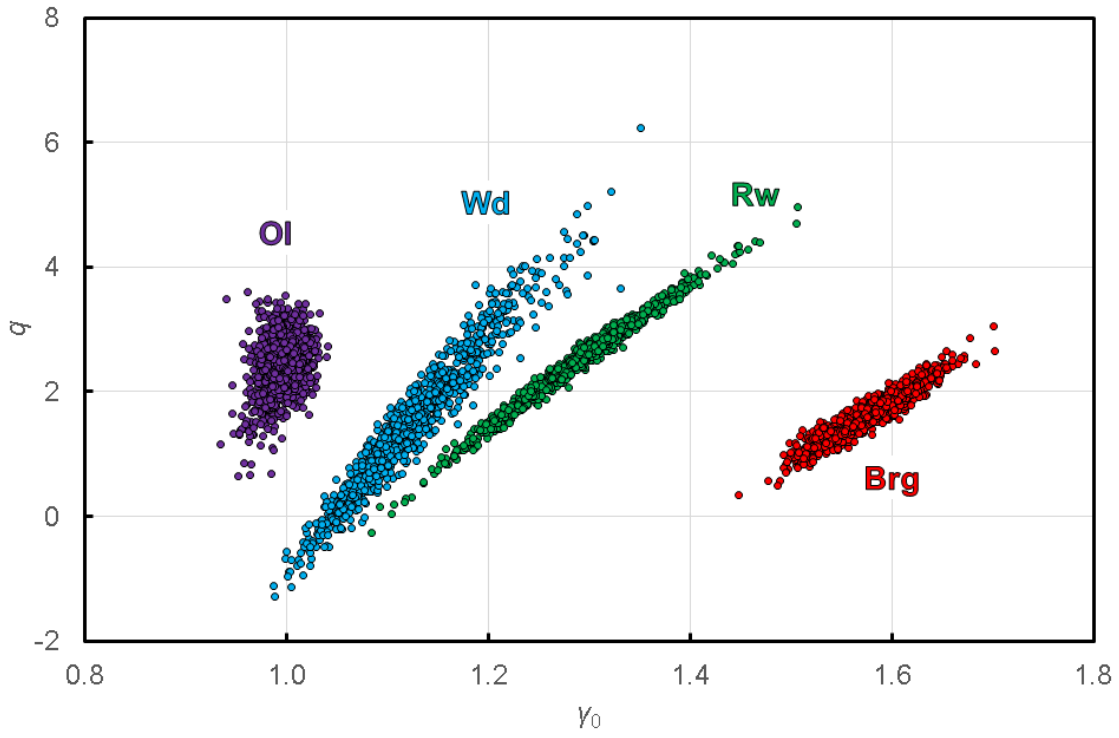

Figure S6. The correlations of γ0 and q. Violet: olivine, blue: wadsleyite, green: ringwoodite, red: bridgmanite. Original data from Katsura et al. [2004a; 2009a; 2009b; 2009c] are corrected using Nishihara et al.'s [2020] thermocouple correction.

Table S1. *P-V-T* data of olivine. The initial data is from Katsura *et al.* [2009a], and the pressure and temperatures are recalculated in this study.

Table S2. *P-V-T* data of wadsleyite. The initial data is from Katsura et al. [2009b], and the pressure and temperatures are recalculated in this study.

Table S3. *P-V-T* data of ringwoodite. The initial data is from Katsura et al. [2004b], and the pressure and temperatures are recalculated in this study.

Table S4. *P-V-T* data of bridgmanite. The initial data is from Katsura et al. [2009c] and Tange et al. [2012], and the pressure and temperatures are recalculated in this study.

Table S5. Thermoelastic parameters of the adiabatic mantle.

Table S6. . Adiabatic temperature profile of harzburgite mantle.

Table S7. Adiabatic temperature profile of wet pyrolite mantle.

Table S8. Adiabatic temperature profiles with various potential temperatures